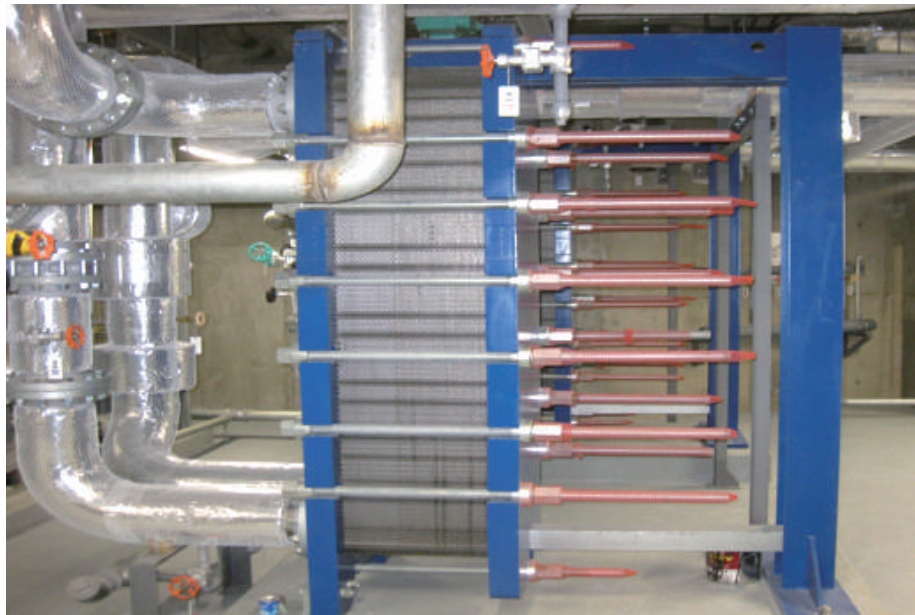


# Plate Heat Exchangers

- Highly efficient, compact and maintainable thermal usage system -



# 1. A plate uses energy effectively, a plate heat exchanger

## 1-1. Advantages of introducing heat exchangers

Heat exchangers that use waste heat, excel at effectively using energy resources. There are two types of heat exchangers: water-water types and water-gas types. To exchange heat using the water-water type, plate heat exchangers are appropriate.

## 1-2. Reasons to support Beltecno plate heat exchangers

Beltecno is a top Japanese manufacturer and developer of stainless steel tanks. We have been manufacturing water containers since our founding in 1947. Our plate heat exchangers are the culmination of our many years of experience and great technical excellence. In total, we have sold over 3700 units until now.

Due to the reliability of Beltecno products, many customers introduce our plate heat exchangers together with stainless steel panel tanks or cylindrical tanks.



Example of use: a plate heat exchanger at a certain facility (Japan)



**Beltecno plate heat exchangers are especially recommended for use in the following applications and places.**

- Large facilities such as business or service complexes
- Hospitals
- Hotels
- Schools

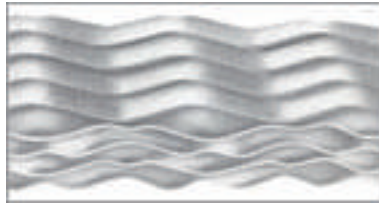
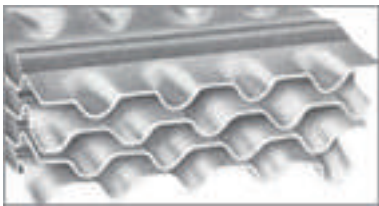
Install them in the machinery room or boiler room of the building.

Also, various industries use them in applications such as heating, cooling or heat recovery.

## 2. Four features of Beltecno plate heat exchangers

### ① High overall thermal transfer coefficient

The wave shape, developed from years of experience and our own research, produces the optimum turbulent flow state. These plates utilize energy very efficiently so that the temperature difference between the hot input and cold output approaches 1°C.



Our heat exchangers use 0.4mm stainless steel or titanium plates. The excellent heat exchange performance allows the thermal transfer surface area to be small and compact.

The space needed for maintenance is also small.

### ② High heat recovery rate

A high heat recovery rate is realized through the waves featured on the thermal transfer plate. The differing hot and cold flows do not merge with each other, but exchange heat through the thermal transfer plates (complete opposite flow). (See "3. Plate heat exchanger structure" on the next page <P03>.)

### ③ The simple structure and easy to dismantle for cleaning

The thermal transfer plates can be dismantled by removing the bolts holding them together, which simplifies inspections and cleaning. The thermal transfer plates and gaskets can easily be replaced if required.

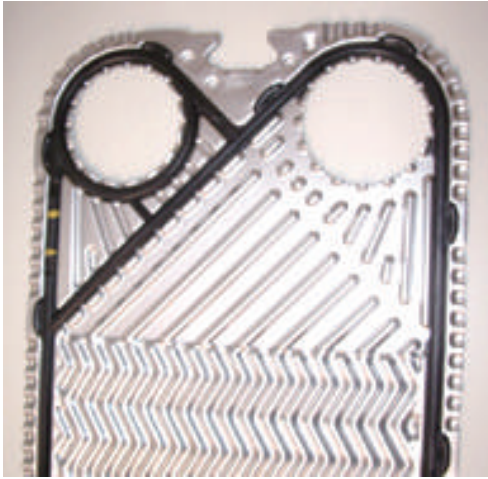
\*the plate heat exchangers will need cleaning and replacement.

### ④ Thermal transfer plates can be increased or decreased to match changing loads

Thermal transfer plates can be increased or decreased to match changes in the load. The increase/decrease range differs depending on the model, material and plate thickness.

## 3. Plate heat exchanger structure

### 3-1. Form of the thermal exchange plate



Longitudinal wave plate

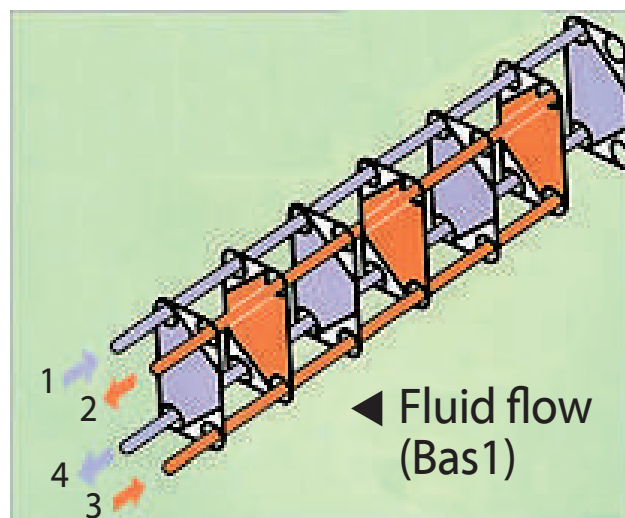


Transverse wave plate

### 3-2. Fluid flow

The plate heat exchanger is constructed simply by sandwiching the unique wave shape plates between the frame holding the input/output nozzles, and tightening the bolts that press them together. Due to the structure of the sealing gaskets and thermal exchange plates, the fluid flows through every other plate.

The fluid entering from nozzle 1, leaves nozzle 4, and the fluid entering from nozzle 3 leaves nozzle 2 (see the diagram below.)



Therefore, the different fluids do not mix and exchange heat via the thermal transfer plates. Also, the wavy form of the thermal transfer plates causes turbulent flow in the fluid to give an extremely high thermal transfer coefficient.



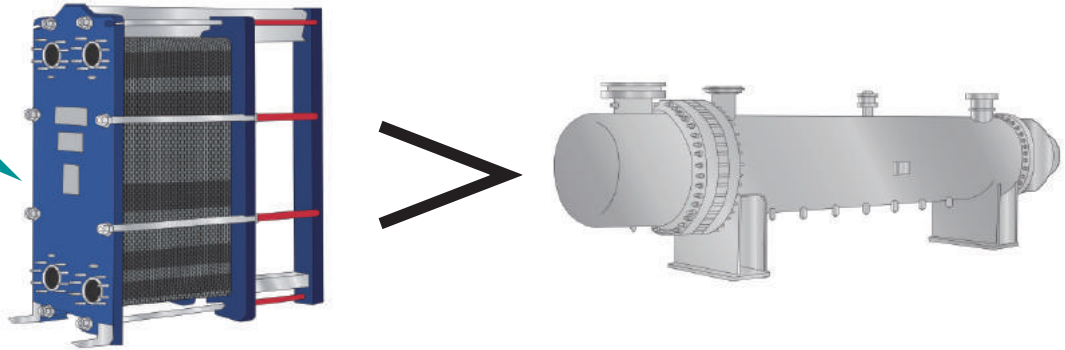
## 4. Comparison of a plate heat exchanger and a shell and tube heat exchanger

The plate heat exchanger is superior to the shell and tube heat exchanger in the 3 following ways.

### ① Heat transfer efficiency:

The plate heat exchanger is 3 – 5 times that of a shell and tube heat exchanger.

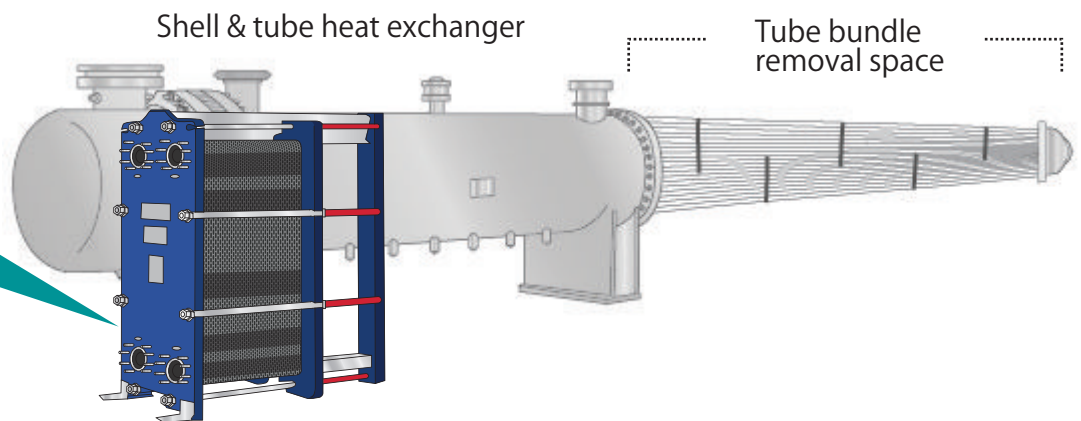
High efficiency



### ② Installation footprint:

The plate heat exchanger is 1/5th – 1/10th that of a shell and tube heat exchanger.

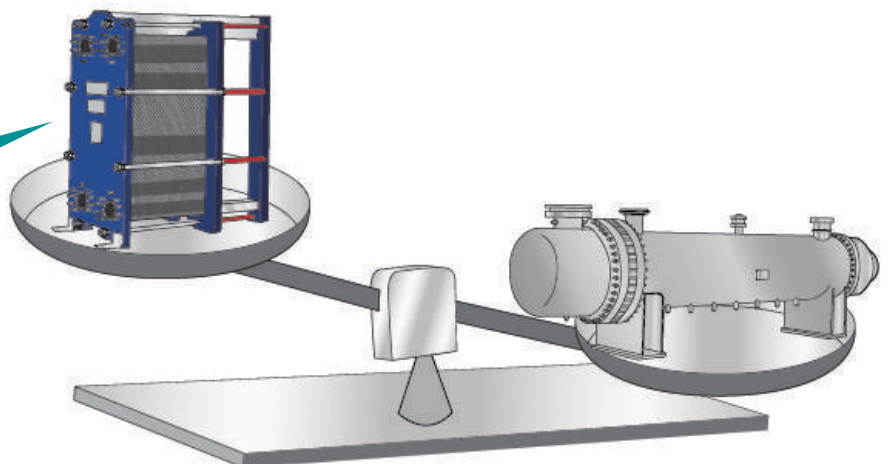
Less space



### ③ Weight:

The plate heat exchanger is 1/10th – 1/20th that of a shell and tube heat exchanger.

Light weight



# Global Leader in Stainless Steel Tanks

BELTECNO is a comprehensive manufacturer of stainless steel tanks, and peripheral equipment such as heat exchangers. It is very famous in Japan as one of the top companies in stainless steel panel tanks and stainless steel storage tanks. It is one of the companies with the world's most advanced technology in this field. Since our establishment in Japan, in 1947, we have continued to satisfy our customers' trust, with the mission of protecting "Water and Life for people", through continuous technological innovation and high quality products.

BELTECNO built the Neemrana factory, our first integrated manufacturing company outside of Japan, in the state of Rajasthan in India. It began full-scale operation in 2015. We are now supplying our products to all parts of India and Asian countries.

Our panel tank received the prestigious Best Fabrication Product award in the product contest, at the India Stainless Steel Pipe Expo 2016, held in New Delhi, in July.



## Locations and Business Units of BELTECNO Group

• **12 business offices** (1 in India) • **8 Factories** (1 in India)

### BELTECNO Japan Headquarters

BELTECNO Co., Ltd.

9th Floor (Asahi Marunouchi Building) 3-21-20 Marunouchi, Naka-ku,  
Nagoya-city, Aichi-prefecture 460-0002 Japan

WEB (Japanese): <http://www.beltecno.co.jp>

In INDIA

### BELTECNO INDIA PVT. LTD.

President : Mr. Kiyokazu Tamura

Incorporated : 18th June 2009

Establishment Capital : 32 crore

Company Registration Number : U29292RJ2009FTC046189

Tax reference Number : AADCB8011C

VAT Number : 08400703340 ISO : 9001:2008



### Sales & Marketing

524A, 5th Floor, Tower- B3, Spaze I Tech Park, Sector-49, Sohna Road,  
Gurgaon, Haryana 122018

### Factory

SP-2-23 New Industrial Complex (Majrakath), Japanese Zone, Neemrana,  
Alwar, Rajasthan 301705

WEB (Global): <https://www.beltecno-global.com/>



For more information and quotation for BELTECNO plate heat exchanger, please enquire here.

**Contact us** >